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North European Understanding of Zero Energy/Emission Buildings

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ABSTRACT

The worldwide CO2 emission mitigation efforts, the growing energy resource shortage and the fact that buildings are responsible for a large share of the world's primary energy use drives research towards new building concepts, in particular Zero Energy/Emission Buildings (ZEBs). Unfortunately, there is a lack of a common understanding for this new type of building which results in most countries to have their own, unique approaches. This paper presents the northern (Danish, Finish, Norwegian and Swedish) understanding of ZEBs and gathers together information related to ZEBs in these countries. Generally, we may observe a correlation between the zero energy/emission building approach adopted by a country and this particular country's utility grid characteristics. Moreover, it is to be noted that the ZEB concept is not well defined at the national level in northern Europe and that all of the participating countries are still to adopt a national definition for these types of buildings. This results in more than one understanding of ZEBs in each country.
This study provides a concise source of information on the north European understanding of zero energy/emission buildings. It puts forward a number of similarities among the four studied approaches while highlighting that each country adopts a slightly different ZEB concept depending on its particular realities. This work may be viewed as a useful input to the coordination of sustainable building research in northern Europe and as a good source of information on different possible approaches towards ZEBs.

Keywords: zero energy building, zero emission building, Nordic countries, requirements, multi-displinary.